DOCUMENT RESUME

ED 183 436 SO 012 360

AUTHOR Solomon, Les
TITLE Social and Geographic Space: Census Tools for the Urban Field Trip.
PUB DATE Oct 79
NOTE 14p.: Paper prepared for the National Council for Geographic Education Convention (Mexico City, Mexico, October 1979). Best copy available.

EDRS PRICE MF01/PC01 Plus Postage.
DESCRIPTORS Environmental Education: *Field Trips: *Geography Instruction: Higher Education: Locational Skills (Social Studies): Maps: Models: Skill Development: Social Studies: Socioeconomic Influences: Speeches: *Teaching Methods: *Urban Studies

ABSTRACT

The paper is designed to help instructors in college-level geography courses design urban field trips. The objective is to illustrate how a few core materials and concepts derived from urban geography texts, census tract maps, and social space models can help provide order and pattern to students' understanding of a city. Census tract maps are visual representations of an administrative district (containing approximately 4,000 people) used in collecting census data. Social space models are quadrant maps based on census data delineated by vertical and horizontal axes representing variables such as socio-economic status, median family income, marital status, and life cycle. Topics discussed include resisting the temptation to cause information overload by saturating students with all relevant materials, preparing students concerning types and uses of census data and descriptions of census geography, helping students examine geographic and social space concepts, and establishing the order in which students will progress from one city quadrant to another during the field trip. A census tract map and social space model for Columbia, South Carolina, conclude the document. (DB)

****
* Reproductions supplied by EDPS are the best that can be made *
* from the original document. *
****

MAR 4 1980

U.S. DEPARTMENT OF HEALTH, EDUCATION & WELFARE
NATIONAL INSTITUTE OF EDUCATION

THIS DOCUMENT HAS BEEN REPRODUCED EXACTLY AS RECEIVED FROM THE PERSON OR ORGANIZATION ORIGINATING IT. POINTS OF VIEW OR OPINIONS STATED DO NOT NECESSARILY REPRESENT OFFICIAL NATIONAL INSTITUTE OF EDUCATION POSITION OR POLICY

"PERMISSION TO REPRODUCE THIS MATERIAL HAS BEEN GRANTED BY

Leslie D. Solomon

TO THE EDUCATIONAL RESOURCES INFORMATION CENTER (ERIC)."

ED183436

Social and Geographic Space: Census Tools for the Urban Field Tri

Les Solomon

College Curriculum Support Project
Data User Services Division
Bureau of the Census
Washington, DC

Paper Prepared for the
National Council for Geographic Education Convention
Mexico City, Mexico
October, 1979

BEST COPY AVAILABLE

SO 012 360

In the attempt to develop skills in describing and interpreting the environment, instructors frequently lead their students outside of the university environment. Complete with hiking boots, topographic sheets, containers for soil and rock samples and camera, the physical geographer heads for the field. The cultural geographer may include topographic sheets and a camera along with an itinerary of stops at the neatest ethnic restaurants and hangouts in the area. But what are the items to be transported on the urban field trip? Does one include all of the topographic sheets, census tract maps and reports that are relevant to the study area? The temptation to saturate the students with all of the relevant materials may result in information overload to the extent that the students may not develop the ability to explore the urban environment with inquiring and analytical minds. This paper suggests that a reasonable solution to the problem can be found by providing the students with two basic resources: a census tract map and a social space model for the local area.

Most urban geography texts provide an introduction to the vast literature which exists on social area analysis and factorial ecology.[1] Originating with the sociological research of Shevky, Bell and Williams, the method involves the classification of census tracts according to a variety of social indicators.[2] Geographers have expanded upon these concepts to provide an overview of the spatial residential structure of the city.[3]

In essence, a factor analysis is applied to a series of census tract variables with the result that the data matrix, frequently including hundreds of data items (e.g., 100 census tracts in the SMSA X 20 census variables per tract = 2000 data items), is collapsed to two or three indices per tract.[4] "Socio-economic status" usually emerges from the analysis as the first factor.[5] Variables such as income, number of persons per room, education level, and occupational status characterize this factor. The second factor, entitled "stage in the family life cycle", "family status" or "urbanization", provides information regarding the age of residents, marital status, type of housing status, etc. of the individuals in the area. The third factor relates to the racial or ethnic characteristics of the area. Variables such as race, and nativity tend to load highly on this factor. Because each factor is seen as being independent of one another, it is possible to plot the values derived from the first two factors for each of the census tracts in two dimensional space such that each census tract becomes a dot on the graph.

The beauty of this model is apparent when one prepares for the urban field trip because it is no longer necessary to provide students with a profile for each of the census tracts to be viewed on the field trip; neither is it necessary to provide handouts from the tract reports to obtain a description of the area. Rather, the students are handed an 8½ X 11 sheet of paper. On one side, the census tract map for the urbanized area of the SMSA provides an easy spatial orientation of the

city for the students. On the other side, a social space model is presented for the same census tracts.

The author has used this approach with undergraduate and graduate students in a variety of geography courses. For purposes of illustration, the census tract map and the social space model for the urbanized area of the Columbia, South Carolina, SMSA will be used.[6]

STUDENT PREPARATION

As with most field experiences, it is important to prepare the students prior to entry into the urban environment. This is particularly true for the present discussion because the students are asked to view the urban environment with the use of a model - a model that is both comprehensive and simplistic in that hundreds of data items are collapsed to a handful of points on a graph.

CENSUS CONCEPTS

Care should be taken to prepare the students concerning the use of census data so that they can understand the type of information that will be used to supplement the visual data collected in the field. These items should cover the type of census data available and descriptions of the census geography.

1. The decennial census on population and housing provides a variety of indicators which measure the socio-economic characteristics of an area.

2. Data are published in reports for small areas within SMSAs. These areas, having approximately 4000 people, are called census tracts.

3. Census tract boundaries follow highly visible features (e.g., major streets, railroads, rivers).

4. Whereas some of the census data are presented as ratios and percentages the user can calculate additional ratio data for other variables to suit his/her needs.

GEOGRAPHIC SPACE CONCEPTS

Students should be encouraged to examine the census tract map to understand the nature of "geographic space" (Figure 1). Whereas the students may think that the review is remedial, these understandings will become particularly important when they examine the nature of "social space".

1. Census tracts that share a common border are close in geographic space; that is, the distance (e.g., feet, miles) between each tract is small. Conversely, a census tract located at the top of the map is rather far (e.g., in miles) from one that is located at the bottom.

2. One can use the tract report PHC(1) for the SMSA to develop maps of the distribution of variables:

   a. Maps of median family income, percent of labor force in professional or managerial positions, median number of school years completed, etc. have a high degree of similarity.

   b. Maps of percent of the population less than 19 years of age, number of rooms per unit, and marital status tend to look rather similar. However, they appear to be rather different from the ones on income, education, etc.

3. There appears to be a relationship between urban spatial theories and the maps created from the census data.

a. The maps of income and education are rather similar to the spatial pattern suggested by Hoyt. [7]

b. The maps of age and density (per room) are rather similar to the pattern suggested by Burgess. [8]

SOCIAL SPACE CONCEPTS

Students frequently have a difficult time conceptualizing space as something that can be measured in units other than linear measure (e.g., feet, miles, meters). To understand the social space representation, however, it is useful to suggest that the students examine their own residential preferences. Are the neighborhoods that seem attractive all in the same area? Is it possible that a neighborhood has more in common (e.g., age, lifestyle, type of housing) with a neighborhood across town than with one that is only a few blocks away? Such questions help the students to understand that social distance can be much different from geographic distance.

1. Each dot on the social space model represents a census tract (Figure 2). The numbers beside the dots correspond to the tract numbers on the maps.

2. The vertical axis measures socio-economic status. The higher a census tract is placed on the graph, the higher the census tract's rank according to indicators of income, education, etc.

3. The horizontal axis measures the lifecycle characteristics. Census tracts that are located on the left hand side of the illustration are typified by individuals whose housing needs are minimal. College students, young singles, and the elderly can seldom afford or need the large detached houses found in the suburbs. Consequently, census tracts with low lifecycle characteristics are usually found near the center of the city. Census tracts located on the right side of the model typically

have large homes, several rooms per housing unit, large families and are located at the periphery of the city.

4. Taken together, the city can be divided into quadrants where the lower left hand quadrant includes census tracts low in socio-economic status and lifecycle, the lower right hand quadrant is characterized by low socio-economic status and high lifecycle; high socio-economic status and lifecycles are located in the upper right quadrant; and high socio-economic status and lifecycle are characteristic of census tracts located in the upper left quadrant.

GEOGRAPHIC SPACE VS SOCIAL SPACE

The contrast between the geographic and social space are easily illustrated after the students have mastered the concepts individually.

1. Neighborhoods that are similar in social space need not be close in geographic space. Two sets of census tracts illustrate this point (CT 104.01 and 113.03 in the upper right quadrant and CT 1 and 20 in the lower left quadrant).

2. Census tracts that are close in geographic space (e.g., CT 27 and 28) are not always close in social space.

3. If one locates all of the census tracts that are in the left hand side of the social space model on a census tract map, most are near the center of the city; conversely, most of the census tracts on the right hand side of the model are in the suburbs.

4. A different picture of the city is presented if one locates the census tracts that are in the upper half of the social space model. These census tracts tend to sort themselves into a set of sectors having their vertices at the center of the city.

TEACHER PREPARATION

Once the students have mastered the concepts relating to social and geographic space, the students are ready to embark on the urban field trip. If possible, the field trip should originate in the Central Business District

(i.e., CT 5) and progress outward through the high socio-economic status quadrant (e.g., CT 20.01, 23, 12, 112.01, and 113.01). Whereas exceptions to the rule can be noted, as one moves from left to right on the graph, one also moves from the CBD to the suburbs. In the Columbia example, the students can gain an understanding of the tremendous variations in socio-economic status that are present in the high lifecycle quadrant by planning the field trip through census tracts 113.01, 113.02, 113.03, and 108.02. From that point, a return trip through census tracts 107.03, 109, 5 and 7 provides the student with an opportunity to examine the characteristics of census tracts located in the lower socio-economic quadrant.

Closure to the field trip experience can be obtained by returning the students to the point of origin (i.e., CBD). The perceptive student will note that they have traversed through the social space model in a counter-clock-wise fashion, sampling variations and regularities in housing and life style that exist throughout the city.

Whereas the field trip is designed to provide order and pattern to the student's understanding of the city, most geographers find that it is hard to resist exploring the unique environments that can be found in the city. These, too, can be related to the model. In the Columbia example census tracts 12 and 13 are adjacent to one another on the map, yet they are at opposite ends of the continuum on the model. The students note that Manning Street, the boundary between the two areas separates two district areas. On one side of the street are unpainted frame tenant houses while spacious

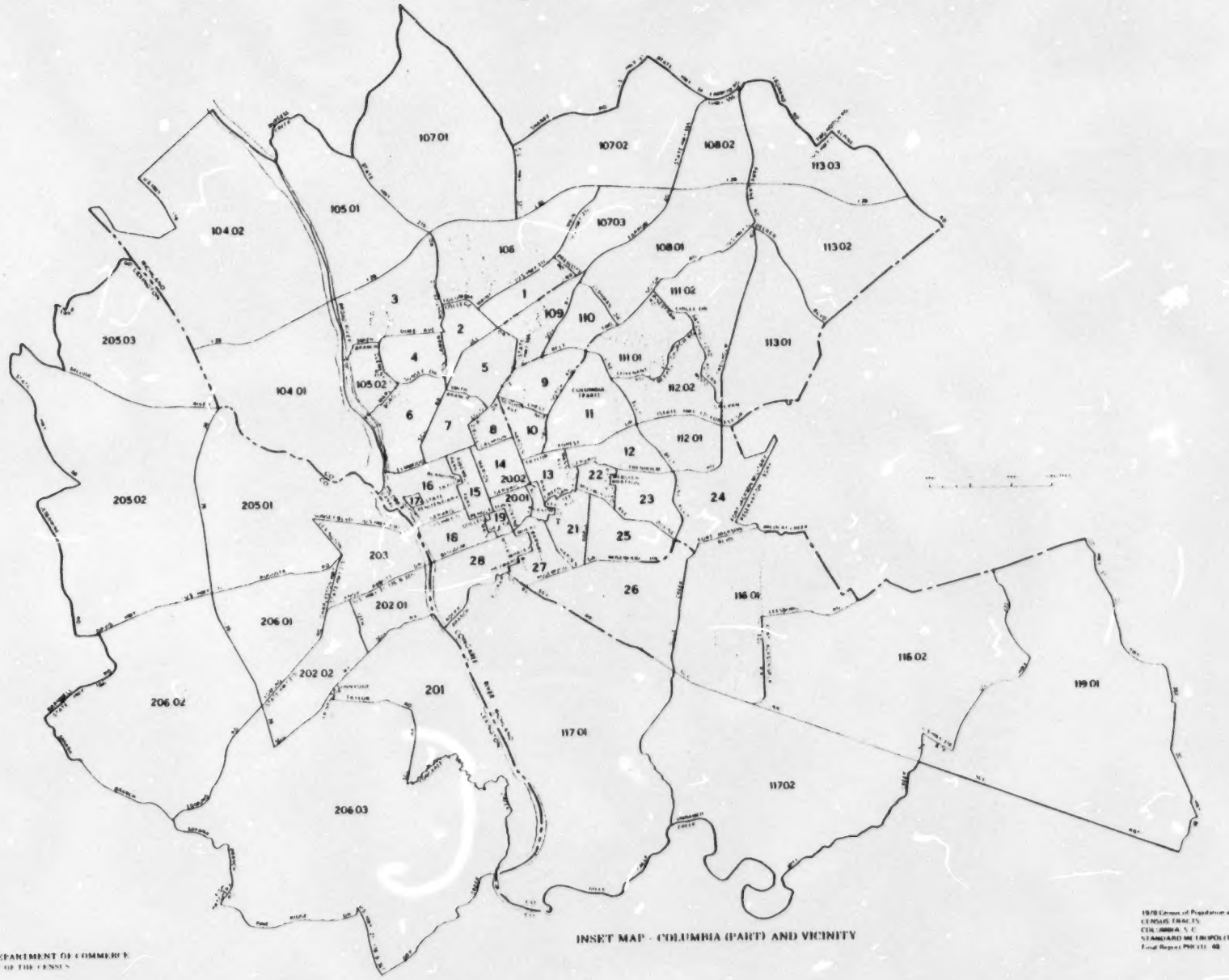
brick houses can be found on the other side. Brick walls or high chain link fences, however, obstruct the view between the two neighborhoods and provide a measure of security for the affluent home owners in census tract 12. These observations can be related to the history of Columbia in that black domestics working in the homes of affluent white neighborhoods needed to minimize their journey-to-work costs. In addition, there was little social interaction between the two communities due to the racial barriers which existed for several years.

SUMMARY

The use of the census tract map in conjunction with the social space model provides a simple, yet sophisticated resource to use on an urban field trip. Not only do the students come away from the trip with an appreciation of the variations in housing quality, life styles, and housing needs for persons in various stages of the family lifecycle, the students discover that the social sciences can provide a systematic approach to the study of a rather complex environment.

BEST COPY AVAILABLE

Figure 1



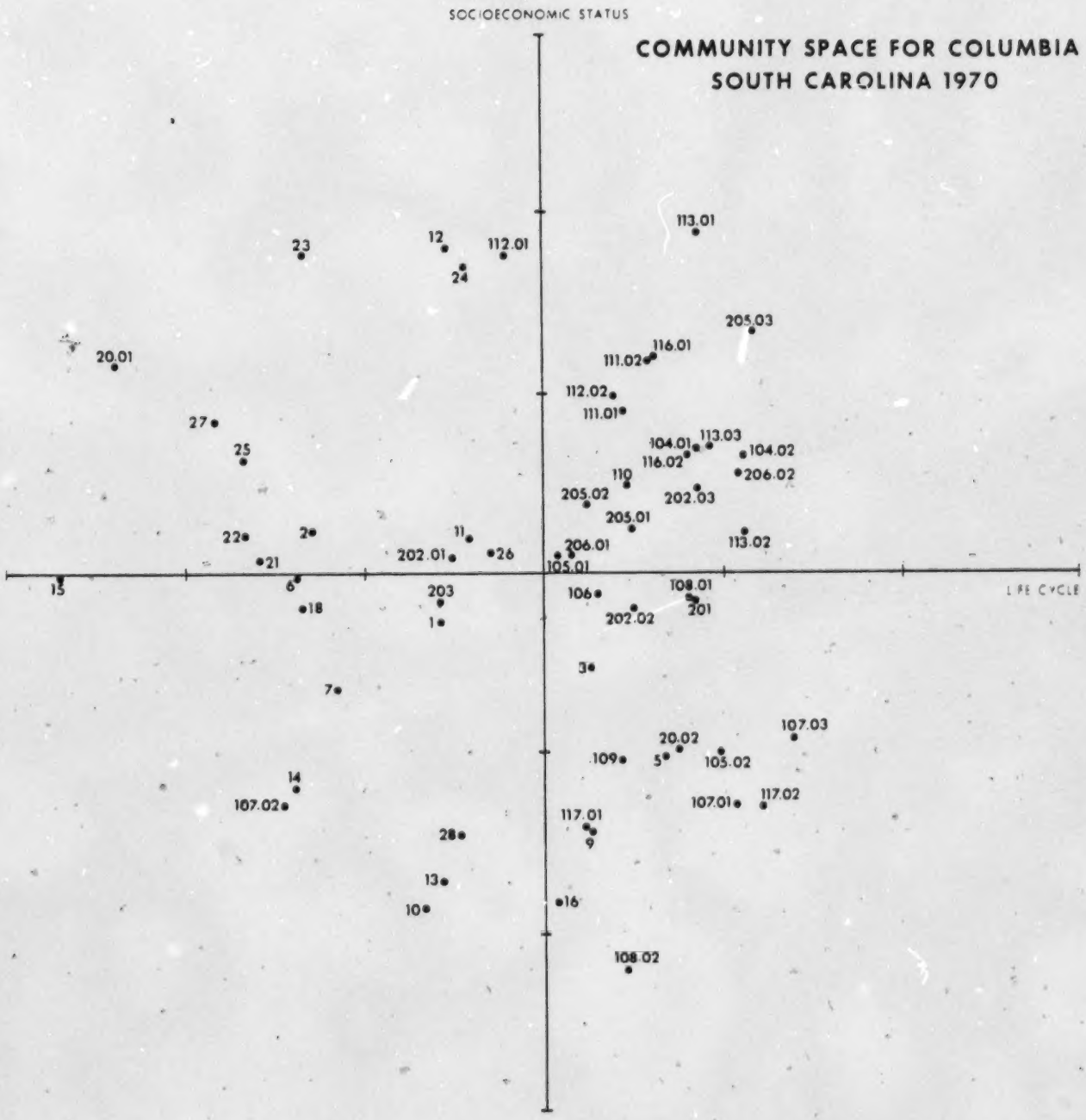
INSET MAP - COLUMBIA (PART) AND VICINITY

U.S. DEPARTMENT OF COMMERCE
BUREAU OF THE CENSUS

1970 Census of Population and Housing
CENSUS TRACTS
COLUMBIA, S.C.
STANDARD METROPOLITAN STATISTICAL AREA
Final Report PHC(1)-48

BEST COPY AVAILABLE

Figure 2


SOCIOECONOMIC STATUS
COMMUNITY SPACE FOR COLUMBIA
SOUTH CAROLINA 1970
LIFE CYCLE
113.01
23
12
112.01
24
205.03
116.01
20.01
111.02
112.02
111.01
27
104.01
113.03
25
116.02
104.02
110
206.02
205.02
202.03
205.01
22
2
11
113.02
202.01
26
206.01
21
105.01
15
6
203
106
108.01
18
202.02
201
1
3
7
107.03
20.02
109
5
105.02
14
107.01
117.02
107.02
117.01
28
9
13
16
10
108.02

FOOTNOTES

[1] Brian J. L. Berry and Frank E. Horton, Geographical Perspectives on Urban Systems (Englewood Cliffs, New Jersey: Prentice-Hall, Inc., 1970), pp 307-394; Ray M. Northam, Urban Geography (New York: John Wiley and Sons, 1979), pp 287-317; and Maurice H. Yeates and Barry J. Garner, The North American City (New York: Harper and Row; 1971), pp 287-308.

[2] E. Shevky, M. Williams, and W. Bell, Social Area Analysis: Theory Illustrative Applications, and Computational Procedures. (Menlo Park: Stanford University, Press, 1955).

[3] The entire June, 1971 issue of Economic Geography is devoted to Comparative Factorial Ecology.

[4] Variables included in the analysis are similar to the ones utilized in the student manual prepared by Keith D. Harries, Central Oklahoma City: A Census Analysis Resource Book, (Stillwater, Oklahoma: Oklahoma State University: 1974). These variables are: Median Housing Value, Percent Housing that is Black Owner Occupied, Percent Housing that is Black Renter Occupied, Median Family Income, Percent of Families below Poverty Level, Percent of Housing Units with 1.01 or More Persons per Unit, Percent Black Population, Percent of Households in the Same Dwelling Unit (1970) as in 1965, Percent of the Population 18 years or below, Percent of the Population 62 Years or above, and Percent of Persons in Group Quarters.

[5] Whereas the factors have a high degree of similarity for North American cities, different sets of factors emerge in other urban areas. Several articles found in the June, 1971 Economic Geography explore this issue.

[6] U.S. Bureau of the Census, Census of Population and Housing: 1970. CENSUS TRACTS Final Report PHC(1) - 48 Columbia, South Carolina, SMSA

[7] H. Hoyt, The Growth and Structure of Residential Neighborhoods in American Cities. (Washington, D.C.: Federal Housing Administration, 1939).

[8] E. W. Burgess, "The Growth of the City", Proceedings of the American Sociological Society, XVIII (1923), pp 85-89.